

# **ABSTRACT**

To provide a voltage-controlled oscillator capable of curbing degradation of a phase noise characteristic and keeping compliance of a control voltage unreduced, and a radio communication apparatus and a voltage-controlled oscillation method using the voltage-controlled oscillator.

The voltage-controlled oscillator having an inductor circuit,  $n$  pieces ( $n$  is two or more) of variable capacitance circuit having variable capacitance elements, negative resistance circuits, and reference voltage generation means of generating a reference voltage from a power supply voltage, and wherein a predetermined reference voltage is inputted to some terminals of the variable capacitance elements of the  $n$  pieces of variable capacitance circuit, a control voltage is inputted to the other terminals thereof, and of the variable capacitance elements of the  $n$  pieces of variable capacitance circuits, the predetermined reference voltage inputted to some terminals of the variable capacitance elements of at least two pieces of the variable capacitance circuit is different.